THERE IS CLAIMED:

A method of fabricating an optical fiber preform including a step of outside deposition of silica possibly doped with at least one dopant by injecting at least one substance in the form of silica or a precursor of silica in the vicinity of a heating area created by heating means during at least one pass of injector means and said heating means along a longitudinal axis of said preform during which the relative positions of said injector means and said heating means are adjusted so that said silica is deposited in said heated area regardless of the position of said heating means.

- 2. The method claimed in claim 1 wherein said adjustment is carried out between each pass and the next.
 - The method claimed in claim 1 wherein said heating means have a main axis in a plane substantially perpendicular to said longitudinal axis of said preform, said injector means have a main axis at a fixed angle to said main axis of said heating means in a plane substantially perpendicular to said longitudinal axis of said preform and said injector means and said heating means move relative to each other in a direction parallel to said longitudinal axis of said preform.

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